

## AMENDMENTS TO THE CLAIMS

5 Claim 1 (Currently amended) An extrusion-free wet cleaning process for post-etch Cu-dual damascene structures, the process comprising:

providing a wafer comprising a silicon substrate and at least one post-etch Cu-dual damascene structure, the post-etch Cu-dual damascene structure having a via structure exposing a portion of a Cu wiring line electrically connected with an N<sup>+</sup> diffusion region of the silicon substrate and a trench structure formed on the via structure;

10 ~~executing an oxidation step by applying a diluted H<sub>2</sub>O<sub>2</sub> solution to the wafer to slightly oxidize the surface of the exposed Cu wiring line; and~~

washing away cupric oxide generated in the oxidation step by means of a cupric oxide cleaning solution containing diluted HF, NH<sub>4</sub>F or NH<sub>2</sub>OH having a pH of  
15 above 7; and

~~preventing Cu reduction reactions on the N<sup>+</sup> diffusion region connected Cu wiring line.~~

Claims 2-5 (Original)

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Claim 6 (Currently amended) The process of claim 1 wherein the method of preventing Cu reduction reactions on the Cu wiring line comprises reducing the H<sub>2</sub>O<sub>2</sub> concentration of the diluted H<sub>2</sub>O<sub>2</sub> solution to below 100:1 (v/v) of solvent to H<sub>2</sub>O<sub>2</sub>.

25 Claim 7 (Original)

Claim 8 (Cancelled)

Claim 9 (Currently amended) A wet cleaning process comprising:

30 an oxidation step comprising a means for reducing Cu deposition on a cathode-like copper wiring line of a Cu-dual damascene structure, wherein the means for reducing Cu deposition on a cathode-like copper wiring line comprises a step of purging an inert gas during the oxidation process; and

an oxide etch step for washing away cupric oxide generated in the oxidation step by means of a cupric oxide cleaning solution; ~~and~~

35 ~~reducing Cu deposition on a cathode-like copper wiring line of a Cu-dual damascene structure.~~

Claims 10-13 (Original)

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Claim 14 (Cancelled)

Claims 15 and 16 (Original)

**Claim 17 (Currently amended)** The process of claim 9 wherein the process of reducing Cu deposition on a cathode-like copper wiring line comprises reducing the  $H_2O_2$  concentration of the diluted  $H_2O_2$  solution to below 100:1 (v/v) of solvent to  $H_2O_2$ .

**5 Claims 18 and 19 (Original)**